CLAIMS

What is claimed is:

     1. A method of terminating two or more
constituent encoders of a turbo encoder employing a turbo
code, the method comprising the steps of:

     generating tail input bits at each of two or
more constituent encoders, including the step of:

     deriving the tail input bits from each of
the two or more constituent encoders separately for each
constituent encoder from a contents of shift registers
within each of the two or more constituent encoders,
after an encoding of information bits by the two or more
constituent encoders; and

     puncturing one or more tail output bits such
that 1/R tail output bits are transmitted for each of a
plurality of trellis branches, wherein R is a turbo code
rate employed by the turbo encoder during an information
bit transmission.

     2. The method of Claim 1 wherein the step of
puncturing the tail output bits further comprises the
step of:

     transmitting, during trellis termination, the
tail output bits only if they are sent from an output
branch of one of the two or more constituent encoders
that is used during information bit transmission.

     3. The method of Claim 2 wherein the step of
transmitting comprises the steps of:

     transmitting tail output bits from a first $X(t)$
output branch and from a second $Y_0(t)$ output branch, when
the turbo encoder is employed as a rate 1/2 turbo
encoder, during trellis termination of a first of the two
or more constituent encoders; and

transmitting tail output bits from a third $X'(t)$
output branch and from a fourth $Y_0'(t)$ output branch, when
the turbo encoder is employed as a rate 1/2 turbo
encoder, during trellis termination of a second of the
two or more constituent encoders.

4.   The method of Claim 2 wherein, when the
turbo encoder is employed as a rate 1/3 turbo encoder,
the step of transmitting comprises the steps of:
transmitting tail output bits from a first $X(t)$
output branch, and a second $Y_0(t)$ output branch, during
trellis termination of a first of the two or more
constituent encoders;
re-transmitting tail output bits from the first
$X(t)$ output branch during trellis termination of the
first of the two or more constituent encoders;
transmitting tail output bits from a third $X'(t)$
output branch and from a fourth $Y_0'(t)$ output branch,
during trellis termination of a second of the two or more
constituent encoders; and
re-transmitting tail output bits from the third
$X'(t)$ output branch during trellis termination of the
second of the two or more constituent encoders.

5.   The method of Claim 2 wherein, when the
turbo encoder is employed as a rate 1/4 turbo encoder,
the step of transmitting comprises the steps of:
transmitting tail output bits from a first $X(t)$
output branch, a second $Y_0(t)$ output branch, and a third
$Y_1(t)$ output branch during trellis termination of a first
of the two or more constituent encoders;
re-transmitting tail output bits from the first
$X(t)$ output branch during trellis termination of the
first of the two or more constituent encoders;
transmitting tail output bits from a fourth
$X'(t)$ output branch, a fifth $Y_0'(t)$ output branch, and a

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sixth $Y_1'(t)$ output branch during trellis termination of a second of the two or more constituent encoders; and

re-transmitting tail output bits from the fourth $X'(t)$ output branch during trellis termination of

5   the second of the two or more constituent encoders.

6.   The method of Claim 1 wherein the step of generating the tail input bits is performed simultaneously at each of the two or more constituent

10   encoders, wherein tail input bits from a first constituent encoder are generated at same clock cycles from a second constituent encoder.

7.   The method of Claim 1 wherein the step of

15   generating the tail input bits is performed consecutively at each of the two or more constituent encoders, wherein tail input bits from a first constituent encoder are generated at different clock cycles than tail input bits from a second constituent encoder.